

Fig. 1

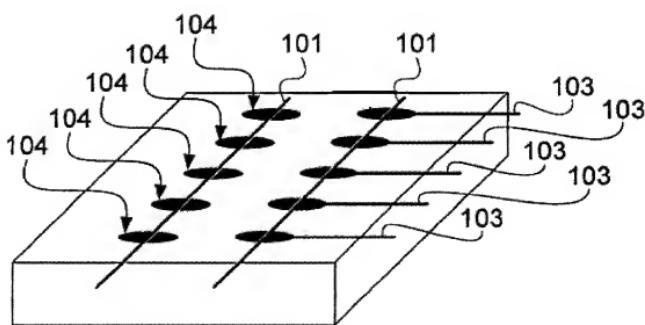


Fig. 2

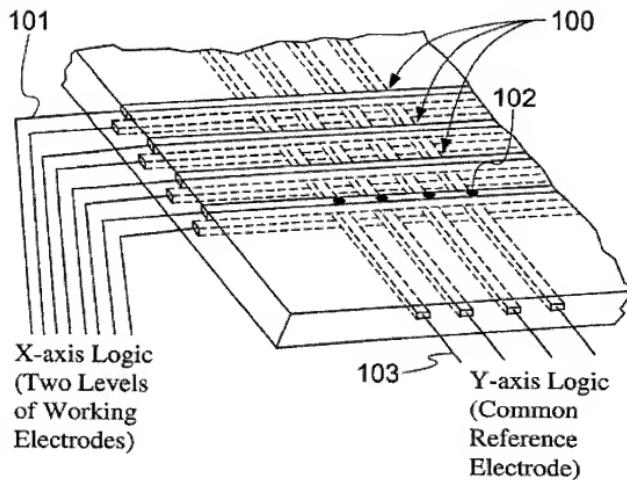


Fig. 3

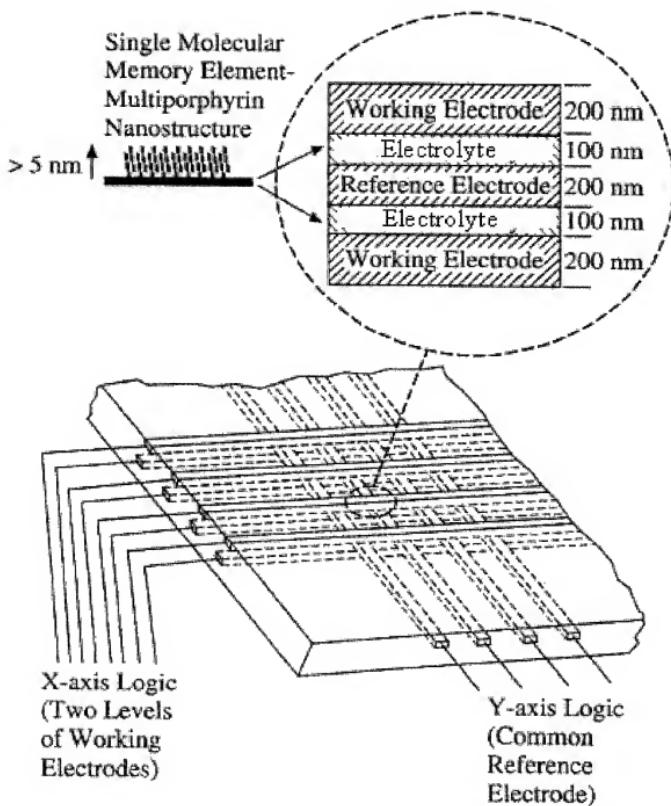


Fig. 4

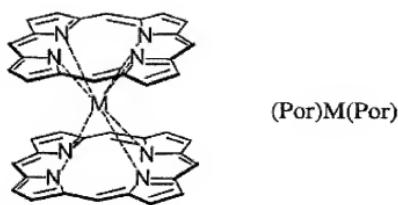
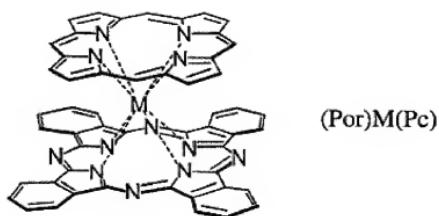
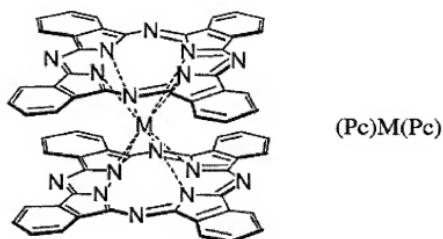


Fig. 5

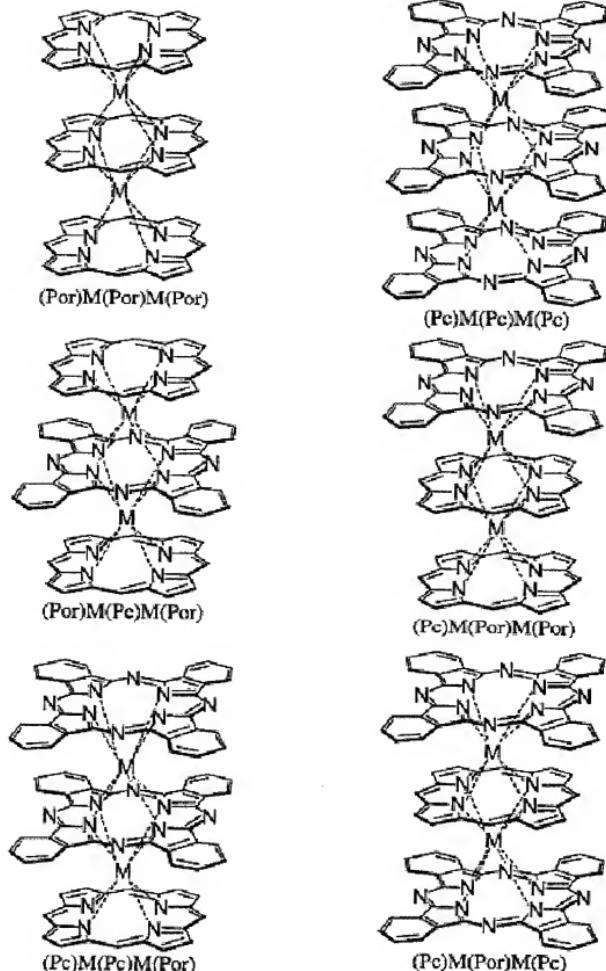


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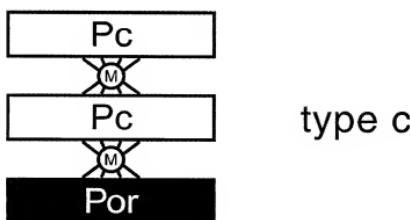
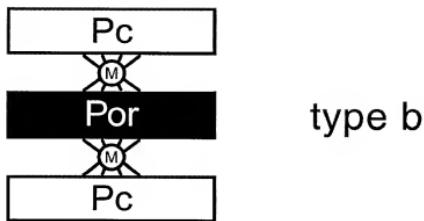
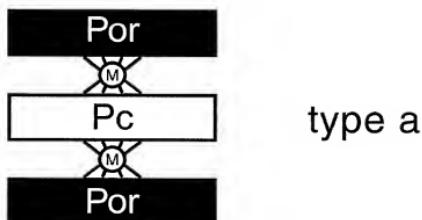


Fig. 7

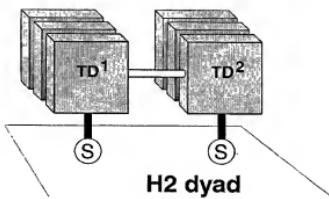
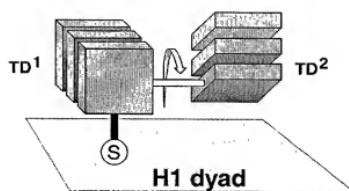
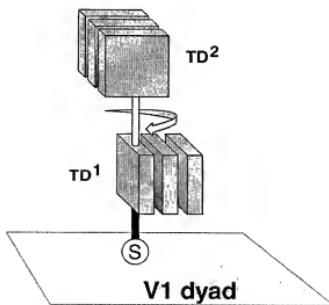


Fig. 8

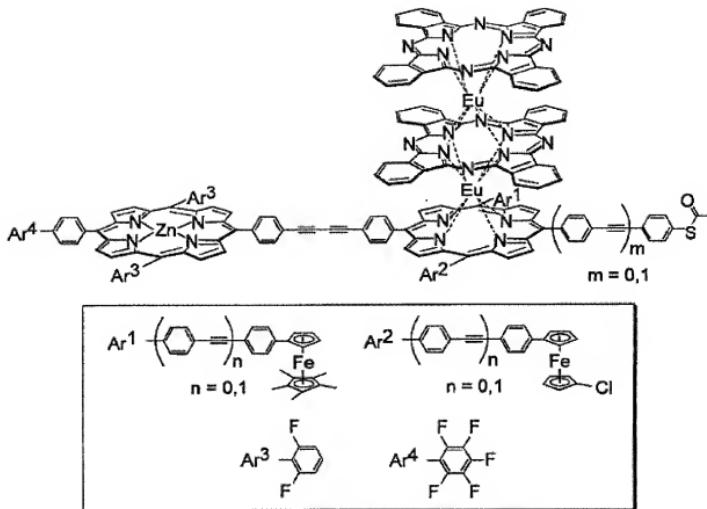


Fig. 9

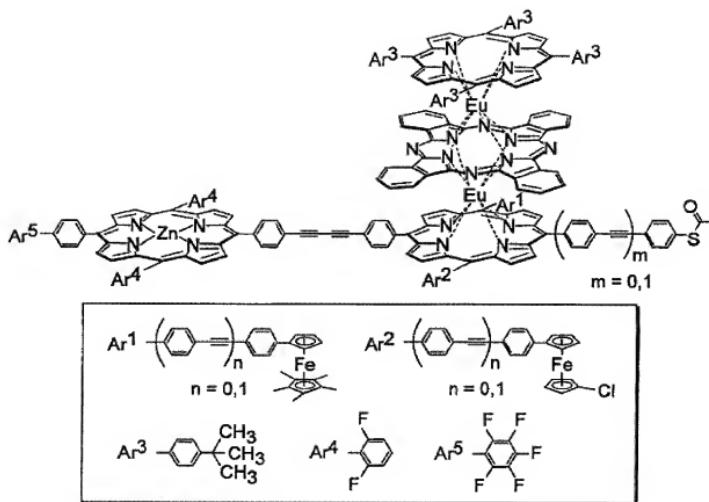


Fig. 10

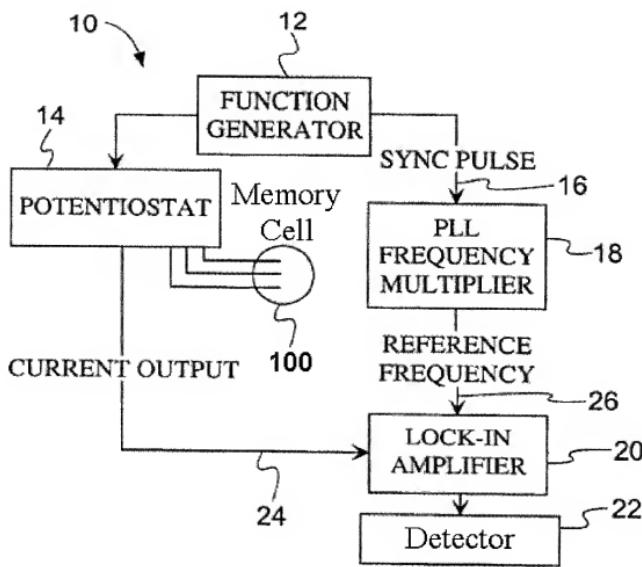


Fig. 11

Computer

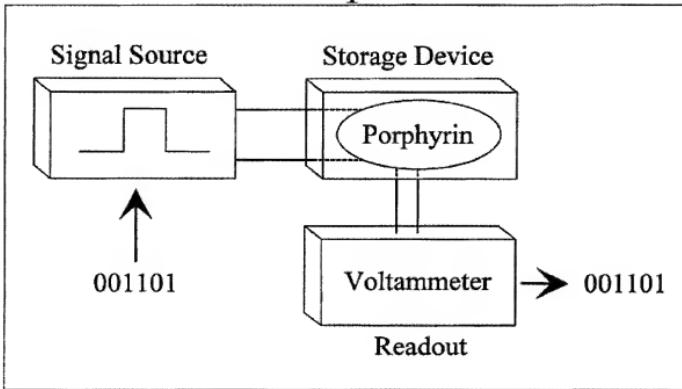


Fig. 12

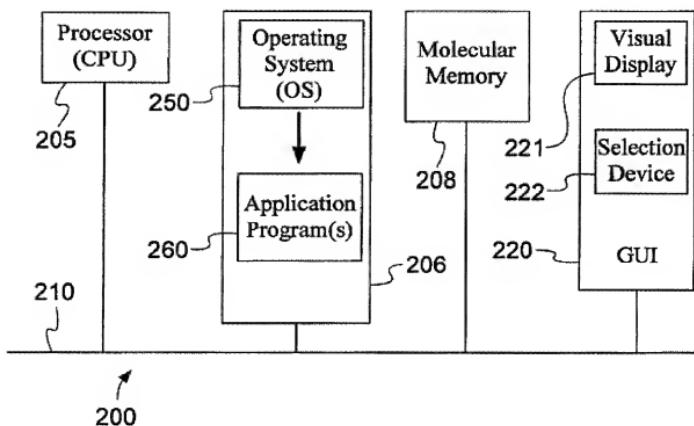


Fig. 13

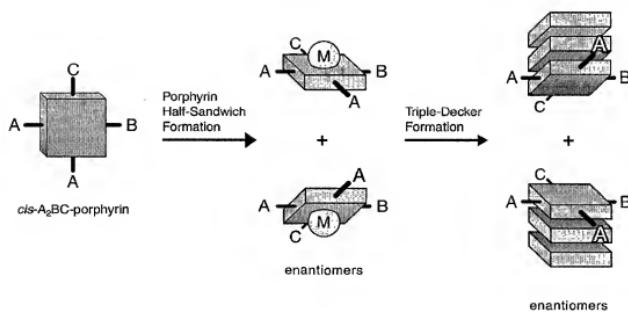


Fig. 14

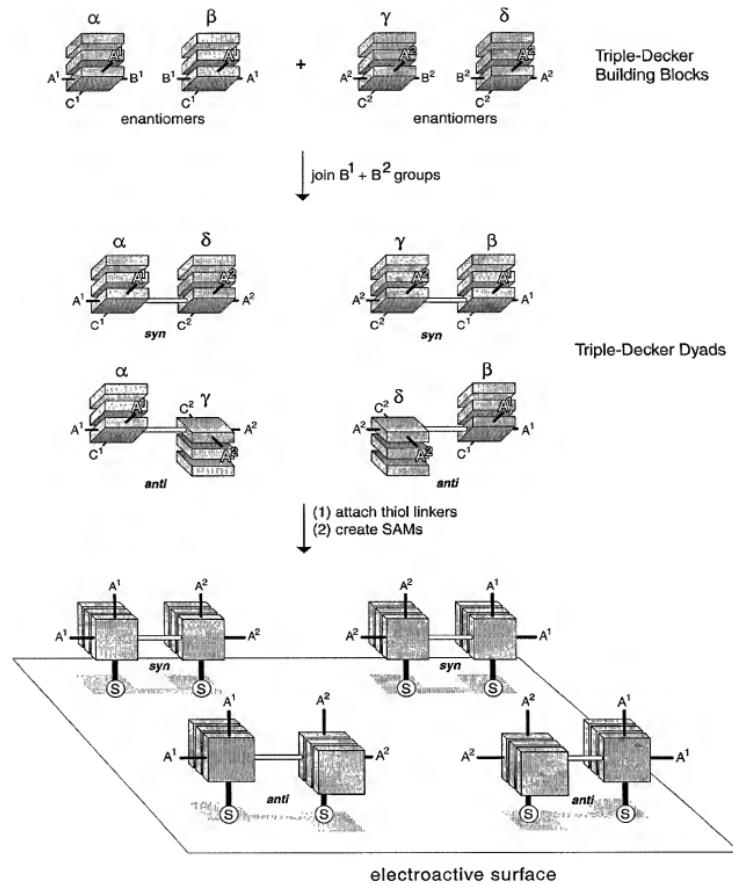


Fig. 15

Scheme 1

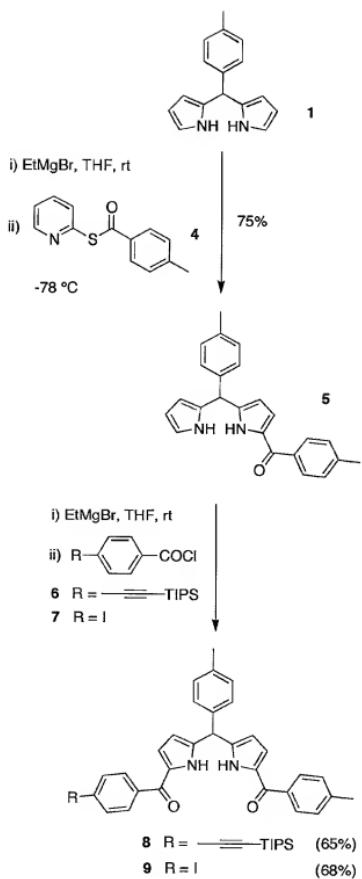
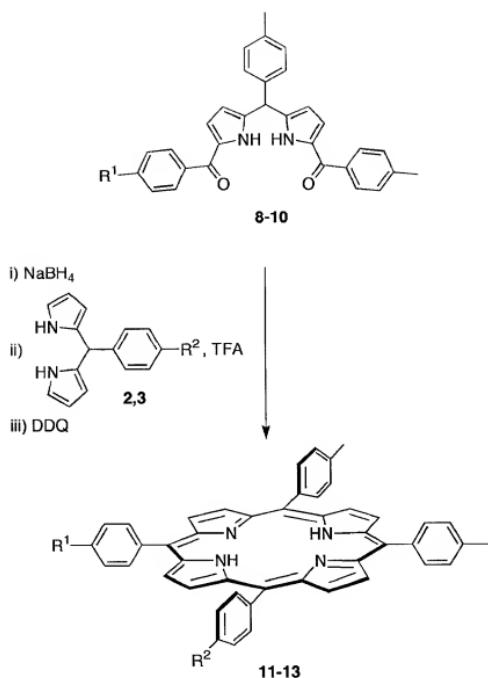


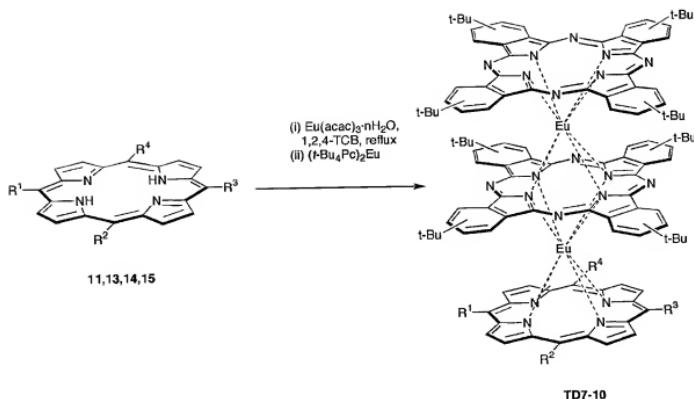
Fig. 16

Scheme 2



Precursors	R ¹	R ²	Porphyrin
8 + 2	—TIPS	—TMS	11 (20%)
9 + 2	I	—TMS	12 (21%)
10 + 3	CH ₃	I	13 (21%)

Fig. 17



Porphyrin	R ¹	R ²	R ³	R ⁴	Triple Decker	Yield
14		p-tolyl		p-tolyl	TD7	74%
11	p-tolyl			p-tolyl	TD8	79%
13	p-tolyl	p-tolyl		p-tolyl	TD9	62%
15	n-pentyl	n-pentyl		n-pentyl	TD10	25%

Fig. 18

Scheme 4

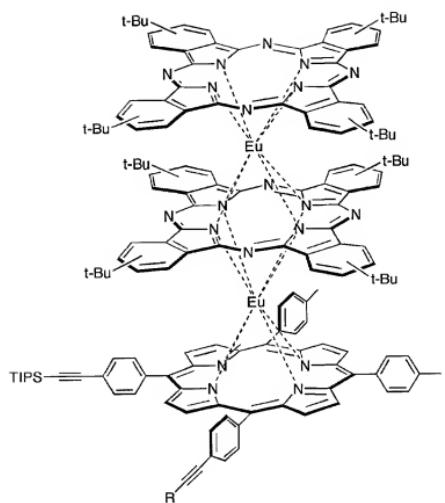
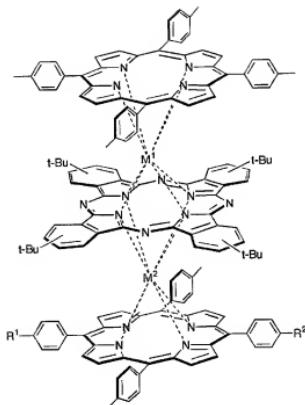
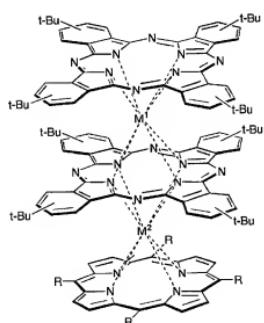


Fig. 19



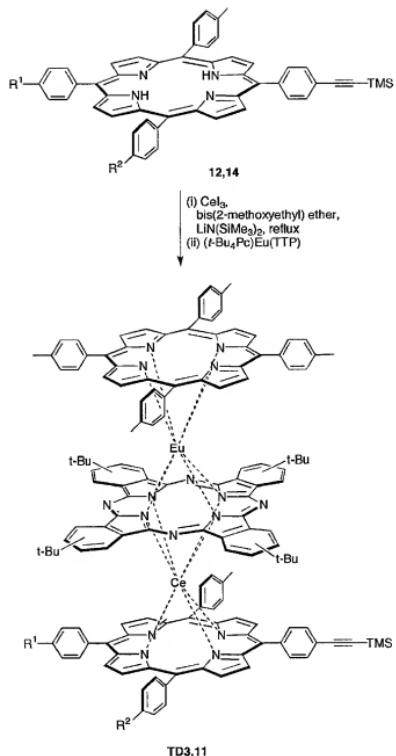
Type a triple-deckers

TD1 M¹/M² = Eu, R¹/R² = CH₃TD2 M¹/M² = Ce, R¹/R² = CH₃TD3 M¹ = Eu, M² = Ce, R¹ = I, R² = ——TMS

Type c triple-deckers

TD4 M¹/M² = Eu, R = p-tolylTD5 M¹ = Eu, M² = Ce, R = p-tolylTD6 M¹/M² = Eu, R = n-pentyl**Fig. 20**

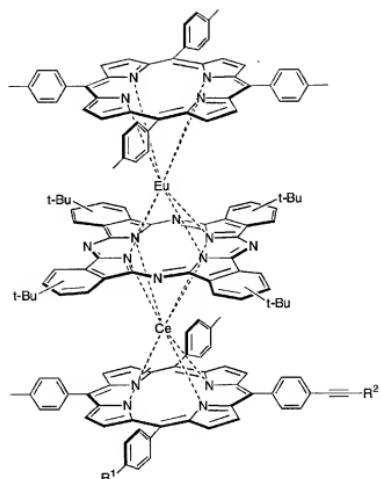
Scheme 5



Porphyrin	R ¹	R ²	Triple Decker	Yield
12	CH ₃	I	TD11	54%
14	I	CH ₃	TD3	46%

Fig. 21

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R ¹	R ²	Triple Decker
I	TMS	TD11
	TMS	AcS-TD11 (57%)
	H	AcS-TD11' (66%)

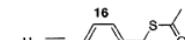
 ← Pd(PPh₃)₄Cl₂, CuI
THF, TEA, 35 °C
(n-Bu)₄NF, THF, 0 °C

Fig. 22

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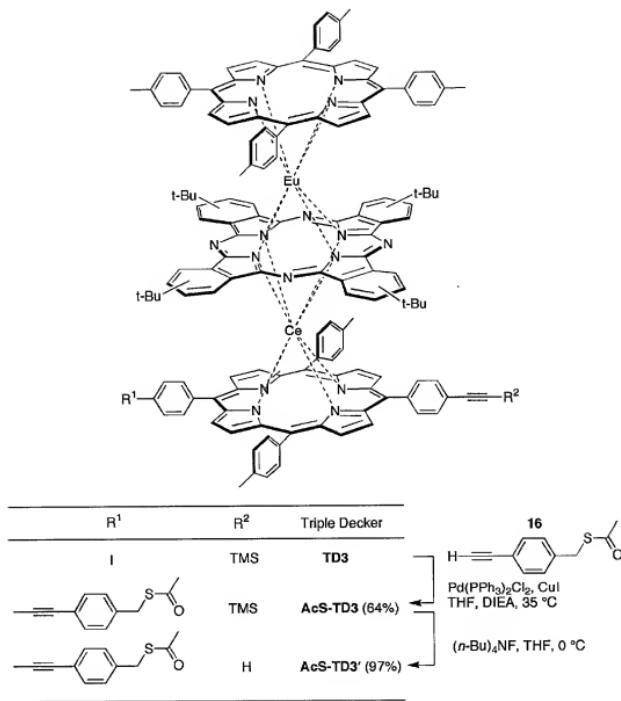
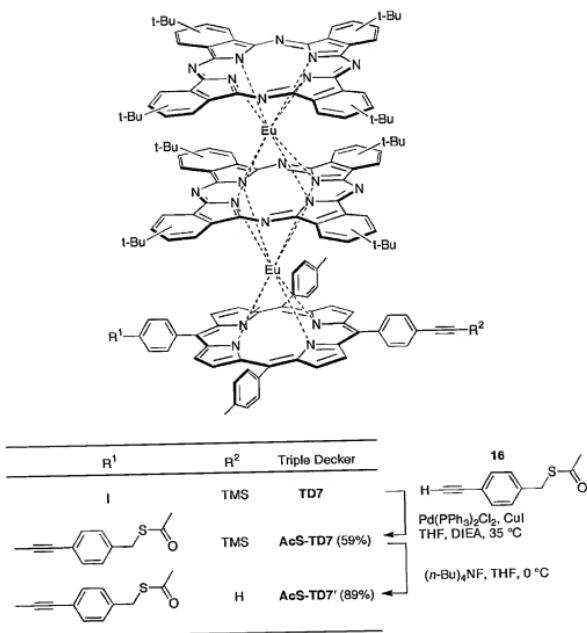


Fig. 23

Scheme 8

**Fig. 24**

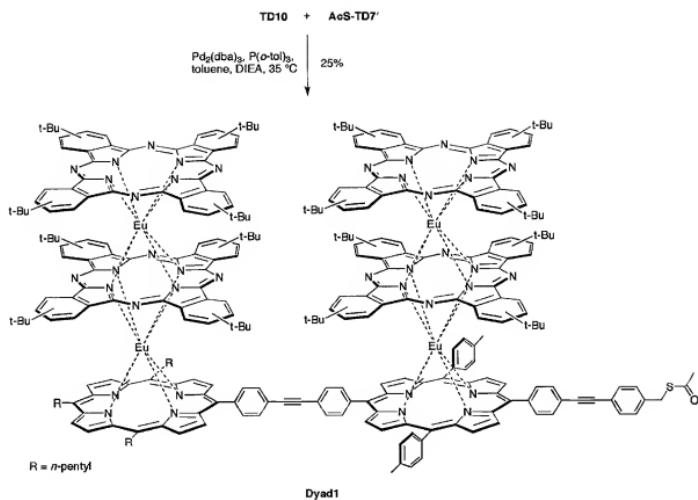


Fig. 25

Scheme 10

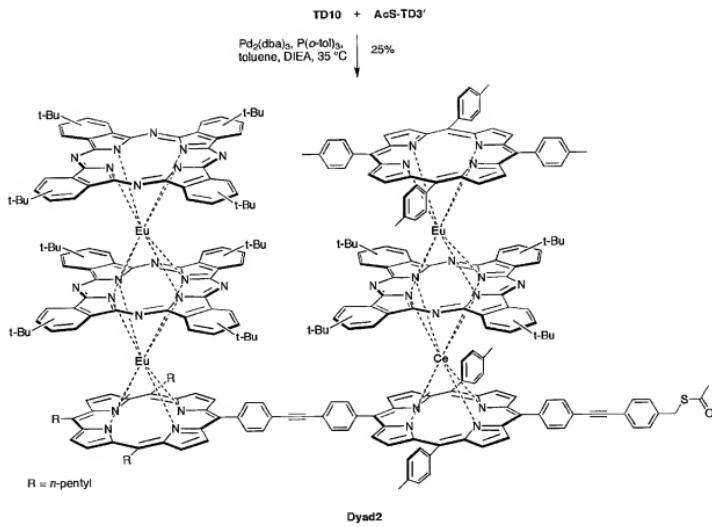


Fig. 26

Scheme 11

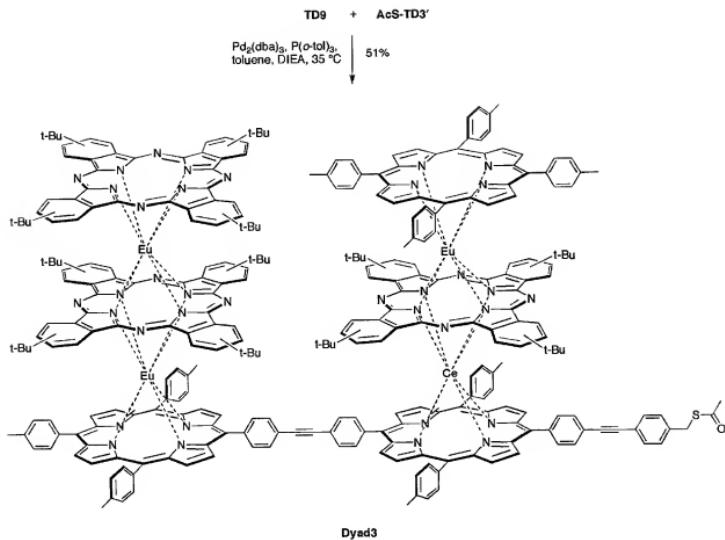


Fig. 27

Scheme 12

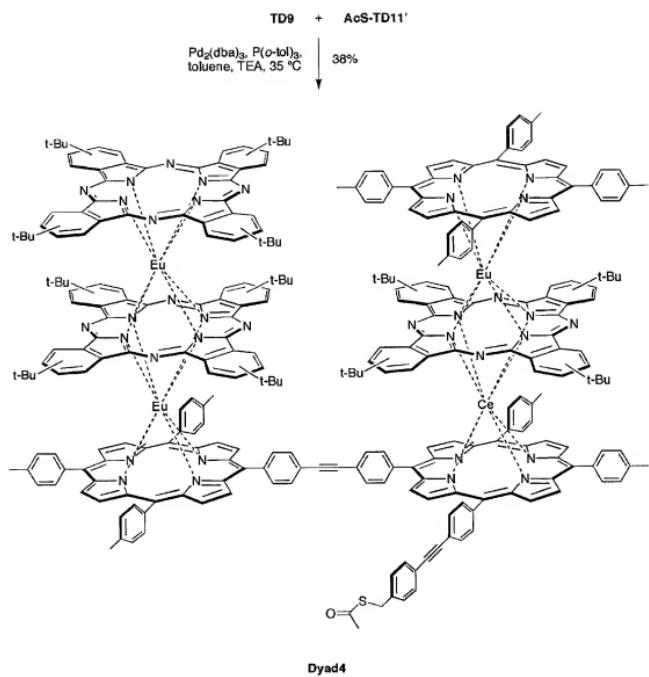


Fig. 28

Scheme 13

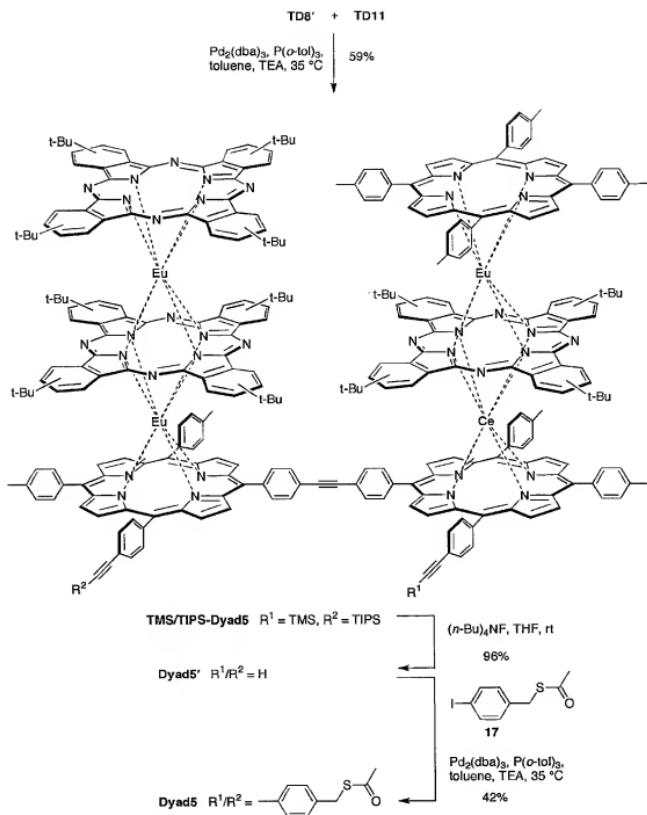


Fig. 29

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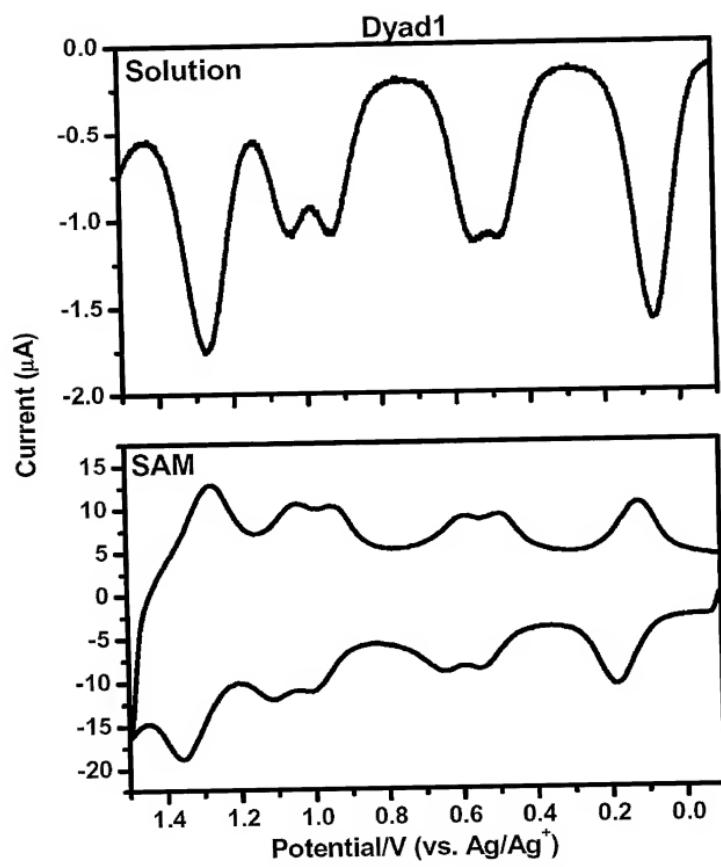


Fig. 30

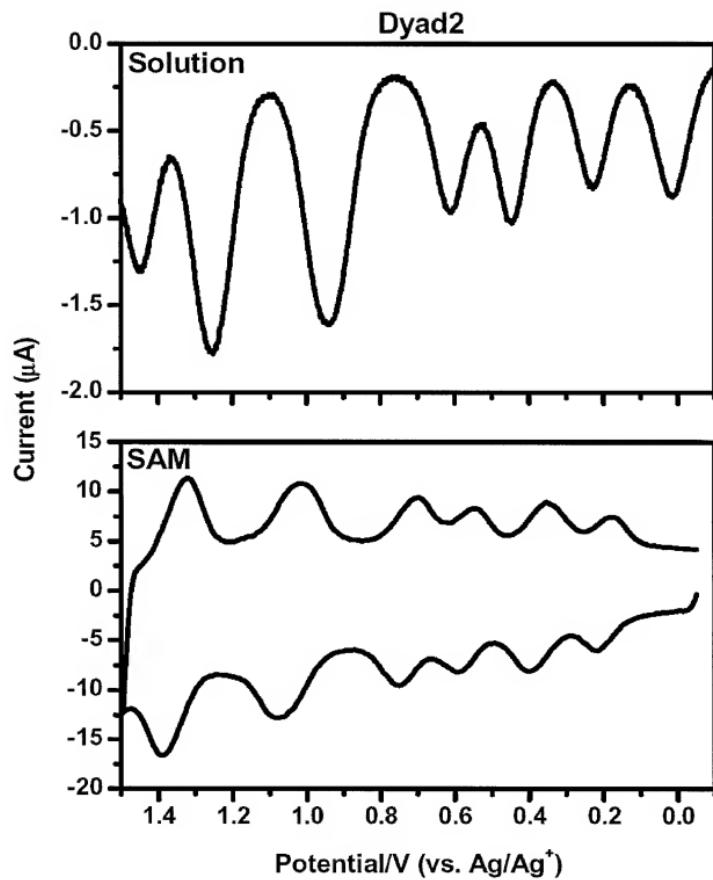


Fig. 31

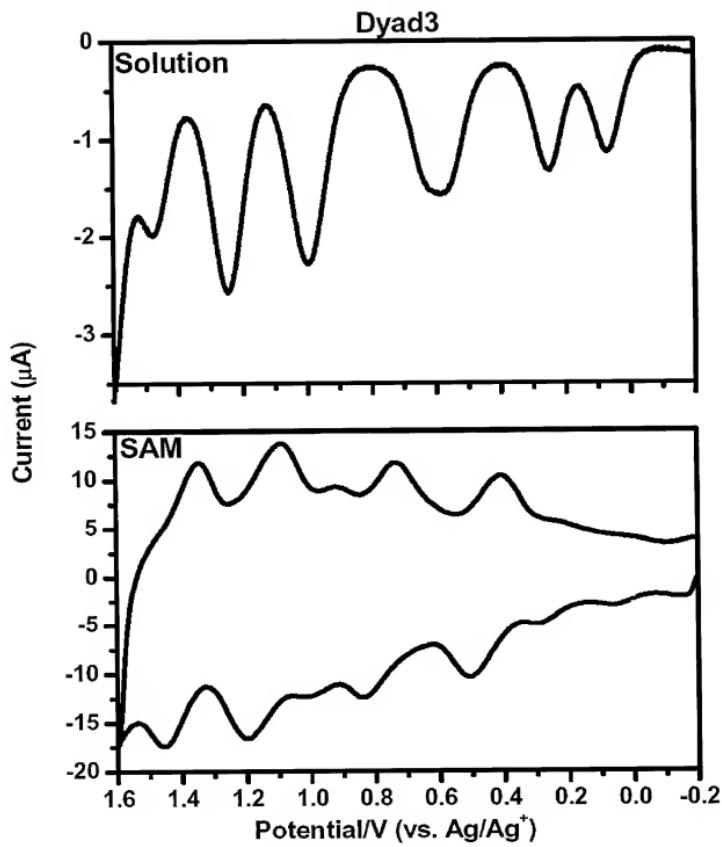


Fig. 32

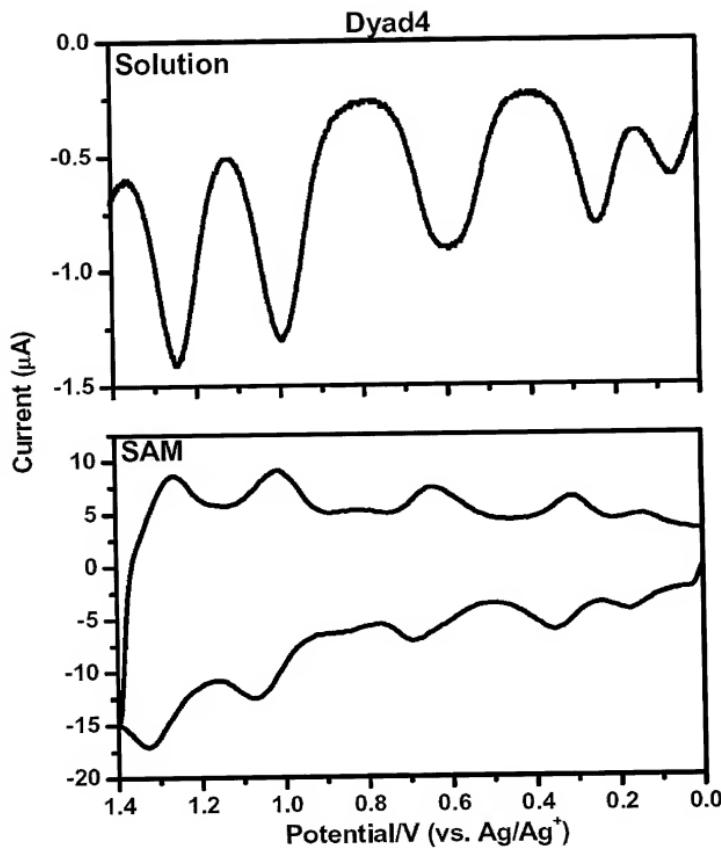


Fig. 33

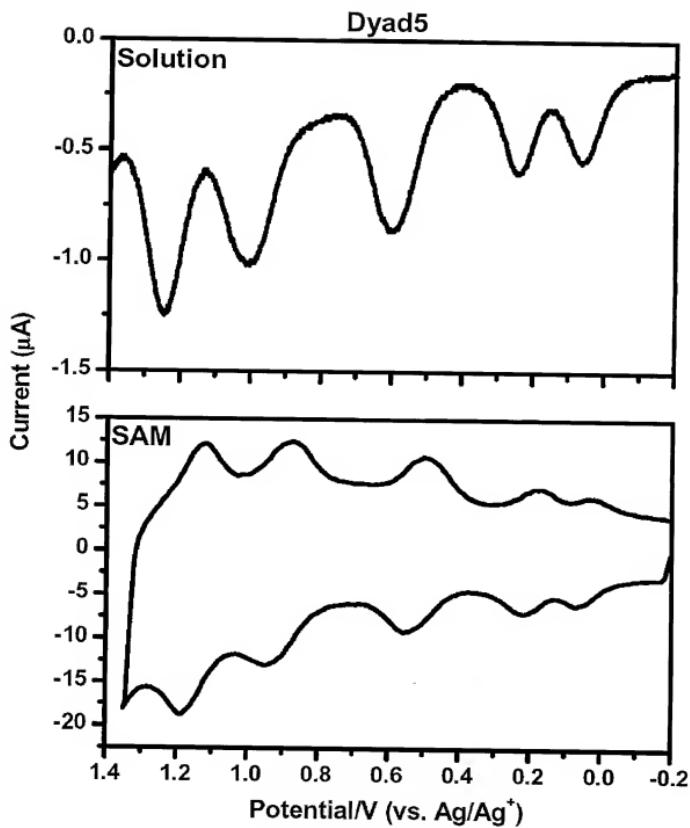


Fig. 34